AriSEIA
ARIZONA SOLAR ENERGY INDUSTRIES ASSOCIATION

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February 4, 2022

Arizona Corporation Commission
1300 W. Washington Street
Phoenix, AZ 85007

RE: Docket No. E-01933A-20-0116

Madam Chair and Commissioners,

The Arizona Solar Energy Industries Association (AriSEIA) hereby files its Exceptions to Staff's Memorandum and Proposed Order filed on January 26, 2022 (the "PO"). AriSEIA thanks staff for the time and effort it put into reviewing Tucson Electric Power's (TEP) Draft Interconnection Manual (the "Manual"). AriSEIA believes the PO must be amended to avoid increasing the costs and complexity for those looking to add battery storage and rooftop solar to their homes or businesses. There are a number of issues remaining with the TEP Manual after the Commission voted in favor of simplifying processes and trusting technology throughout the adoption of the Interconnection Rules themselves. The following Exceptions explain what changes must be made so that Tucson residents do not miss out on the benefits of technology that other utilities around the country are permitting their customers to utilize. You will note below that we offer several specific amendments but also conclude that the PO should include not only the specific amendments we propose but also a clear directive to TEP to make further amendments to the Manual in short order.

I. Meter Socket Adapters

If adopted as is, the PO would deny residents in Tucson and surrounding communities the ability to save money and time when they adopt battery storage and rooftop solar technology. Meter socket adapters ("MSAs") are UL certified equipment that can eliminate the need for what are often messy and complicated rewiring exercises that accompany the installation of a battery and solar backup project. Instead of spending hours rewiring and adding new panels to a home, an installer can utilize an MSA to quickly (i.e., a matter of just minutes) accomplish the same goal.

During the Commission's lengthy discussion and debate over the Interconnection Rules themselves, a majority of this Commission (including Chairwoman Marquez Peterson, Commissioner Kennedy, and Commissioner Olson) voted in favor of numerous amendments to the proposed rules that focused on allowing consumers to leverage reliable and safe technologies to benefit from efficiencies and lower costs while streamlining processes. Permitting the use of MSAs is in keeping with the numerous decisions the Commission has already taken related to interconnection that have positioned Arizona as a leader in supporting the adoption of new technologies.

In addition to lowering actual costs to consumers (by up to several thousand dollars in some cases), the use of MSAs is a benefit to AriSEIA's members because it allows our members to spend less

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time on each installation. This provides members an opportunity to better deploy workers and maximize the hours in each day. In turn, this means our members can better serve their customers.

While acknowledging that at least fourteen other utilities are already permitting MSAs, the PO proposes giving TEP nearly a year to analyze this already proven equipment. Further, the PO proposes that TEP should be the party to install and procure the MSAs when they are used.

One of the most common complaints we receive about our state's utilities revolves around the time it takes to schedule inspections or otherwise get the utilities to take required actions. Additional delays may result due to the utility during procurement or installation of the MSA (or both) causing additional problems for the consumer. Further, if our members are on site and ready to install an MSA along with the battery and solar systems, it is inefficient to ask the utility to send an additional worker to do what our member company is already on site to do. There is potential for this to add cost to the consumer and potentially raise electric rates over all to accommodate the utility's need to fulfil this function. AriSEIA supports the adoption of language that Tesla has proposed and that is restated below:

Purpose: This Amendment permits the use of safe MSA technology in order to save consumers time and money associated with what can otherwise be a complicated battery and solar installation process.

DELETE Page 9, line 21 thru page 10, line 23 and **INSERT:**
Based on its review of this language, the Commission supports its implementation and orders it be added as Section 9.2.1(i) in the Manual. This language provides a clear standard by which to judge meter socket adapter technology and permits TEP customers to benefit from same technology that is proven to reduce the time and costs associated with adopting solar and battery storage technologies.

Further, in order to support and clarify the use of the beneficial MSA technology, the Manual should be further amended to include the following definition of Interconnection System Equipment in Section 9.3:

> Interconnection equipment such as a customer-owned meter collar for the purpose of interconnecting power production or whole home electric isolation and (intentional or unintentional) islanding of a GF shall be allowed where that device does not impede access to the sealed meter socket compartment or pull section of the SES. The meter collar shall be UL 414 Certified and rated adequately for the connected equipment.

DELETE page 12, lines 4-9 and **INSERT**:

IT IS THEREFORE ORDERED that Tucson Electric Power Company shall amend its Revised Interconnection Manual to facilitate the utilization of MSAs as set forth herein.

II. Construction Timeline Extensions

During the ACC rulemaking process, AriSEIA commented several times that having deadlines for completing construction after an interconnection application is approved presents significant

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financial risks to customers whose construction schedule is at the mercy of permit approval, supplier and subcontractor performance, weather, work backlogs, global supply chains, and the time required to install large systems. R14-2-2621(G) gives a customer 180-days to install a system and says that a utility "may" withdraw an application after this time but does not require withdrawal.

Under the Rules, a customer could experience a delay causing the 180-day installation requirement set forth to be missed thereby giving the utility the option to withdraw the application and stop the project. This can have substantial negative impacts on the customer who would then need to reapply and potentially find out their project no longer passes screening criteria, causing potentially unaffordable costs and schedule impact. It is unreasonable for customers not to have a fair opportunity for an extension and the Manual must clarify this requirement.

Level 2 systems have lengthier permit reviews, which are done in parallel to utility interconnection design review to keep timelines reasonable. Megawatt sized systems will frequently require more than 180-days even with smooth progress. These are often substantial construction projects and consumers should not need to incur such risk. New building construction projects with solar systems may also dictate longer timeframes. By the time a customer submits a complete interconnection application, they have already invested in design efforts to provide the necessary drawings.

To mitigate this risk, we recommend that the Manual be modified to provide a path for automatic extensions if the customer can show that their installer has made site specific equipment commitments or site physical construction or AHJ approval progress. AriSEIA proposes the following amendment in furtherance of this recommendation.

PURPOSE: To provide consumers flexibility and to remove risk that is created when a project takes longer to install than originally anticipated. Our Rules permit utilities to allow more time for the installation of a project before expiring an interconnection agreement and we believe this amendment requires utilities to provide that additional time if the customers can show they have been moving forward with constriction and not sitting idle with an unused interconnection approval.

Page 11, line 2, at the end of the sentence **INSERT**:
"Utility customers are placed at risk when the completion of construction of their GF takes more than 180 days. Often large or even small construction projects can take longer than this time period and delays on construction projects are not uncommon. Under the Rules, the utility may issue extensions of the interconnection agreement, but also may cancel the agreement if there are delays. Upon cancelation, any investment the customer has made toward the installation of the GF would be forfeited. We believe customers deserve protection from these risks and that utilities should approve extensions if the customer can demonstrate that permits have been acquired, equipment has been purchased, construction has commenced, or any additional funds in reliance on the interconnection agreement have been spent."

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III. Fast Track, Non-Exporting, and Inadvertent Export Systems

The Rules define Level 1 and Level 2 systems up to 2 megawatts that by their definition and screening criteria represent very manageable and safe additions to utility grid circuits and are recognized as "Super Fast Track" or "Fast Track," respectively. The Rules also define Non-Exporting and Inadvertent Exporting systems with even less impact to the grid and that have broader ability to qualify for Level 1 or 2 status. In other states, with even greater solar penetration than we currently have in Arizona, regulatory rules prohibit utilities from adding burdensome requirements to Fast Track systems, such as redundant protective relays, utility monitoring, additional studies, expensive utility-initiated trip transfer equipment, and utility grid control features. Systems as large as 2 megawatts should be exempt from such treatment.

Section 7.3 – Definition of Generator Size Classes, ignores the Commission's rating system though it applies to static inverter generators, as well as synchronous and induction generators. Section 9.6.2 – Generator Class Protection Requirements, imposes equipment additions on certain Level 2 systems that are unduly onerous. 9.6.2.3 – Class III (Three-Phase 301kW – 2,500kW) identifies additional requirements for systems above 301kW, yet ignores those that pass the Fast Track tests and should be exempted from such requirements. There are many sections in the Manual where modifications are needed to exempt Fast Track systems up to 2 megawatts, Non-Exporting, and Inadvertent Export systems as detailed below.

A. Premature Upgrade of Inverter Functions – Section 11

This section addresses advanced grid support functions. The provision for systems above 1 megawatt should be revised to exclude Fast Track systems that can be up to 2 megawatts in size. Today, IEEE 1547-2018 inverters mentioned in the Rules are commercially unavailable, and the Manual should be written in a way that allows for continued interconnection with IEEE 1547-SA inverters, until the industry transitions to providing 1547-2018 inverters. Inverters can be field tested to the standard in accordance with 1547-SA until such time that 1547-2018 certified equipment is available. Additionally, the referenced 1547-2018 and 1547.1-2020 are only applicable to the future 1547-SB certification, which is not referenced. Given that 1547-SA inverters can meet the current required and optional advanced inverter capabilities, we recommend to not require 1547-SB inverters until at least June 2023 to ensure sufficient inverter availability.

B. 9.1.5 Dedicated Transformer

The requirement to have a self-generation customer pay the utility to reconfigure their electric service to provide a separate transformer in a shared transformer situation is unreasonable and should be removed. The paragraph's stated reasoning has no technical foundation with regard to shared or dedicated transformer status.

C. 9.6.2.3 Class III (301kW – 2,500kW) and 10.3

Additional Requirements for GF ≥ 301kW – This section should exempt systems classified as Level 2 Fast Track (<2MW) as well as Non-Exporting and Inadvertent Export from requirements including transfer trips, remote trips, utility offsite monitoring, and upgraded metering.

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D. Interconnection Studies and Drawing Approval - Section 15

This section should be expanded to include the application process and timelines and should clearly state that there are no charges for interconnection application processing and design reviews for Level 1, Level 2, Non-Export, and Inadvertent Export systems unless they fail screens that result in a supplemental review or other types of studies. Charges and deposits should be enumerated here so the Commission can approve them. Several study sections involve charges against initial customer deposits. In the past, TEP has required high deposits relative to study costs (e.g., $10,000-$20,000 deposit for a final $2,000 charge). AriSEIA recommends fees approved by the Commission, but if the Commission keeps the deposit format, AriSEIA recommends that the Commission set parameters for the deposit amount. Having predictable or relatively small fees is important to allow customers to make decisions with adequate information.

In addition to study costs, the Manual has gaps with regard to what equipment the utility will be providing for transfer trips, remote shutdown, and remote monitoring. AriSIEA recommends that contractors be allowed to furnish equipment additions and that utilities furnish specifications. If utilities are allowed to charge customers and furnish equipment, the Commission should require each utility to provide an overview of these items and how costs are determined to the customer. AriSEIA is concerned about the prices charged for equipment provided by the utilities, as there have been examples of large variations among the utilities for similar projects. Providing equipment at customer sites for communication with both switchyards and utility control rooms for initiating trips is excessive.

IV. Fees and Costs

AriSEIA has concerns about the process by which TEP charges applicants for review fees and the utility's construction costs in situations where the utility is building interconnection facilities. TEP often requires upfront payment of estimated construction costs that can be inflated by as much as 20% and include 10-20% contingencies, in addition. We hear from members that TEP does not provide cost breakdowns or documentation at the end of the construction process. We have also received complaints that TEP charges solar customers higher costs for equipment upgrades than to non-solar customers. The Manual should require TEP to provide detailed accounting and reasonable deposit and payment terms.

V. Conclusion

Please see the below Attachment A for a summary of AriSEIA's comments and recommendations. AriSEIA respectfully requests that the following amendment be adopted along with the previously proposed amendments to require TEP to promptly revise and resubmit the Manual to address these issues:

PURPOSE: To require TEP to modify the Manual to comply with the Interconnection Rules and not overly burden Super Fast Track and Fast Track systems and to resolve issues regarding burdensome equipment requirements, including dedicated transformers, transfer trip shutdown equipment, cost accounting, deposit amounts, and inverter requirements.

Page 11, line 2, **INSERT**:

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"First, the Manual must be revised to better preserve the Super Fast Track and Fast Track designations recognized in the Rules. TEP is directed to pay attention to systems that qualify for these faster review tracks as well as Inadvertent Export and Non-Exporting systems and to remove restrictions and burdens from these systems. Second, the Manual must be revised to require TEP to address concerns over high deposit requirements and a lack of adequate documentation to support charges to customers for utility-supplied interconnection equipment. Third, the Manual must be revised to not prematurely require inverters to comply with IEEE sections that are not yet adopted or for which equipment is not yet capable of compliance. Fourth, the Manual must be revised to modify TEP's requirements around transfer trip infrastructure, so as to not be overly burdensome, thereby saving hundreds of thousands of dollars for large installations such as those going onto schools. As a result of the forgoing, TEP is directed to submit a revised Manual that includes the specific changes ordered herein, and that proposes language to deal with the issues raised in this section within 30 days of the date of this Decision. Staff is then to issue a revised PO within 45 days."

Respectfully,

/s/ Mark Holohan
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ATTACHMENT A

ARISEIA DETAILED COMMENTS ON TEP INTERCONNECTION HANDBOOK

Section	Description	Comment
6.3.1.b	Max 500kVA	No reason to set a limit for non-exporting, behind the meter systems.
7.3	Generators Sizes	Update to Level 1, Level 2, and Level 3 sizes per Rules. 2MW should have no redundant relay, safety, or monitoring requirements.
8.4	Expedited Review	The section should apply to non-exporting systems that have no storage (e.g., curtailment controls or reverse power protection relays). There should be no restrictions for having other exporting systems that have met the requirements applicable to those systems when they are installed (see 8.4.1.d and 8/4/2/i). Other restrictions on system sizes in 8.4.1.d, f, and g are not justified and should be dropped for non-exporting systems. The reference to avoided screens should be 8.3 instead of 8.2.
9.1.3	Multiple Generators	A requirement for multiple systems to be connected to a single remote disconnect is unreasonable since they are typically added at different times or are on large multiple building facilities where interconnections are downstream of the main utility service.
9.1.5	Dedicated Transformer	The requirement for changing to a dedicated transformer for self-generation is unreasonable and should be deleted.
9.1.7	Transfer Trips	Fast track systems should be excluded from needing this equipment. Sections 9.6.3 and 12.7 are related and should have the exclusion too.
9.2.1.a.ii	Manufacturer Specification of Lugs	UL listed lugs must be used.
9.2.1.a.iii	Lay-in Lug Preferred	Insulated mechanical lug, such as Polaris of Brundy is an acceptable alternative.
9.2.2	Load Side Connection	Replace "tap" with "connection."
9.6.2.3	Generator Class Protection Requirements	Update 300kW to 2MW per Level 2. Solar inverters should not be in the same ruleset as rotating generators. Level 2 systems do not require transfer trips, shunt trip breakers, or SCADA utility monitoring equipment additions.
9.6.2.4	Generator Class Protection Requirements	Class IV system requirements should not be imposed on Non-Exporting or Inadvertent Export systems.
10.5	Remote Monitoring - ION Meter	Update 300kW to 2MW per Level 2.

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11	Advanced Inverters	Allow for Non-Exporting and Inadvertent Export systems on circuits that have reached "Hosting Capacity." See previous discussion in the body of this letter.
12.1.e	Pre-PTO Testing	Make temporary interconnection automatically approved for testing, limited to time technicians are on-site performing testing and commissioning.
Appendix A.1	Elevation View	Do not require an elevation drawing to accept a submission.
Appendix B.1	Battery Discharging	Delete Note 1 which provides unnecessary and unjustified restrictions on battery usage by the customer. There should be no restriction on charging from TEP's grid then back feeding that energy.
Appendix B.2	Battery Discharging	Delete Note 1 which provides unnecessary and unjustified restrictions on battery usage by the customer.
Appendix B.3	Battery Discharging	Delete Note 1 that requires that the protected load be fed from the main panel. There should be no restriction on charging from TEP's grid then back feeding that energy. Delete Note 3.
R14-2-2609	Utility DG Contact	TEP needs to identify a person as their distributed generation point of contact.
General Comment	Electronic Signatures	R14-2-2604.A.6: Allow for electronic signatures.
General Comment	Circuit Capacity Upgrades	If a circuit has reached "capacity," utility should offer battery incentives and/or upgrade their circuit.